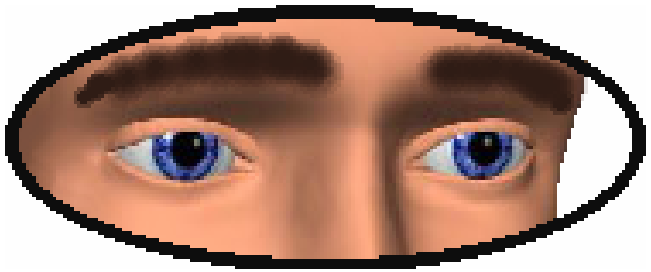


Strategies for Developing Good Driving Habits and Effective Vision Control

Montana
The Road to Skilled Driving
OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Standards and Benchmarks

3. Visual Skills

a. know proper visual skills for operating a motor vehicle

b. communicate and explain proper visual skills for operating a motor vehicle

c. demonstrate the use of proper visual skills for operating a motor vehicle

d. develop habits and attitudes with regard to proper visual skills

4. Vehicle Control

b. develop habits and attitudes relative to safe, efficient and smooth vehicle operation.

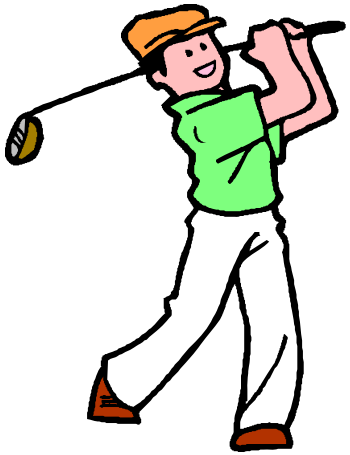
6. Risk Management

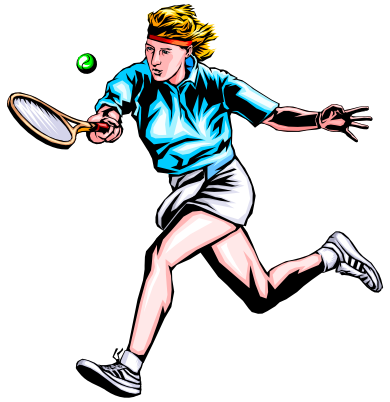
a. understand driver risk-management principles

b. demonstrate driver risk-management strategies

c. develop driver risk-management habits and attitudes

What do they have in common?





Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Six Steps to Positive Habit Development

1. Identify the behavior and desire to do it

2. Demonstrate ability to perform the behavior.

3. Overcome resistance of “this is the way I do it”.

4. Understand and identify when the behavior is performed correctly or incorrectly.

5. Practice the behavior correctly at least 28 times.

6. Perform the behavior correctly without thought.

Driver Judgment

Like athletes and musicians, drivers can learn what to do without hesitation on a good judgment level of awareness

- It takes a desire to be a good driver
- Precision driving does not rely on luck, fate, or maneuvering skills

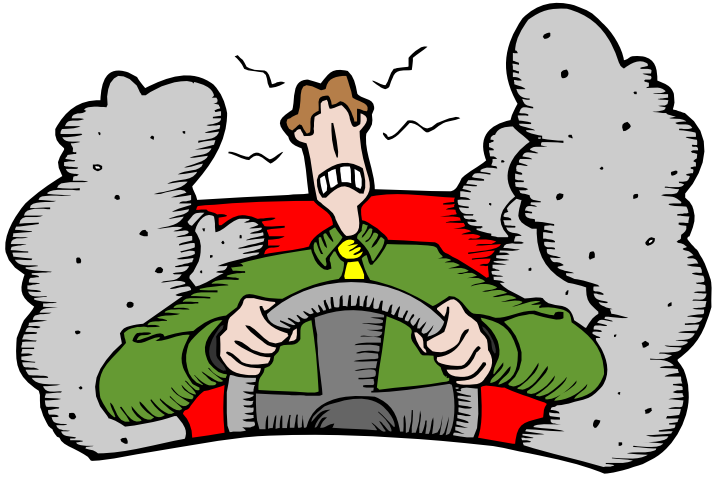
Driver Judgment

Some drivers think they are good drivers because they don't crash.

When they do crash, it's caused by "the stupid actions of other drivers!"

Driver Judgment

"This driver makes me feel uncomfortable…



"I am a very good driver!"

Four Levels of Performance

Driver Awareness Level	Driver Performance Level
Level One	Okay – by habit without thought
Level Two	Okay – with thought
Level Three	Not Okay – with thought
Level Four	Not Okay – without thought

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Based on Mottola, F. R. (1999) Empower Yourself, p. 1

Four Levels of Performance

Most Driving Actions Are Here

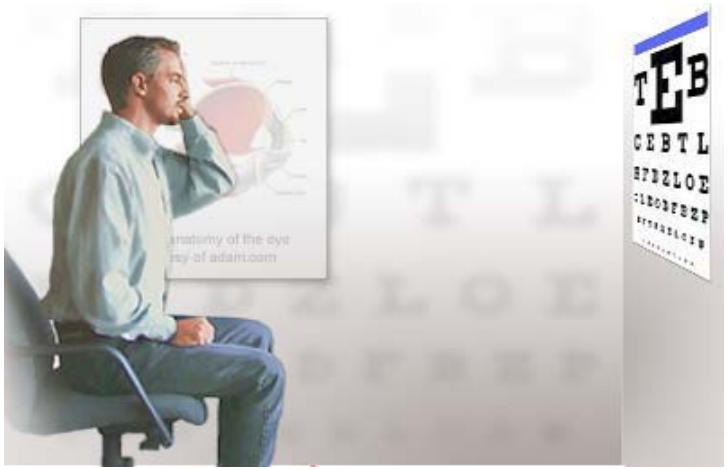
Most Learning Occurs Here

Level One	Okay – by habit without thought
Level Two	Okay – with thought
Level Three	Not Okay – with thought
Level Four	Not Okay – without thought

Ten Good Driving Habits

1. Get driver and vehicle readiness to drive
2. See a clear path before moving the vehicle
3. Keep the vehicle in balance
4. Use reference points to know where the vehicle is
5. Search for line of sight and path of travel restrictions
6. Develop strategies for decision-making and action
7. Safely navigate intersections
8. Control the rear zone
9. Control the front zone
10. Drive with courtesy

VISUAL TESTING



Visual Acuity

The top number refers to the distance you stand from the chart (20 feet.) The bottom number indicates the distance at which a person with normal eyesight could read the same line.

For example 20/20 is considered normal. 20/40 indicates that you correctly read letters at 20 feet that could be read by a person with normal vision at 40 feet.

Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Visual Acuity

An eagle's eye sight is estimated to be at least 50 times more efficient than a human eye. Hunting Eagles can observe their prey from a distance of at least two miles!

How do humans use visual acuity when driving?

VISUAL FUNCTIONS

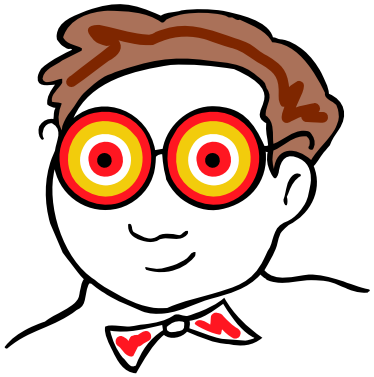
About 90% of all driving decisions are based on what is seen.

- Drivers must see far enough ahead to make good decisions about speed, lane position, traffic signs, signals, and markings, and hazards
- Drivers must see near and far: close enough to read the speedometer, far enough to see the target area

DEPTH PERCEPTION

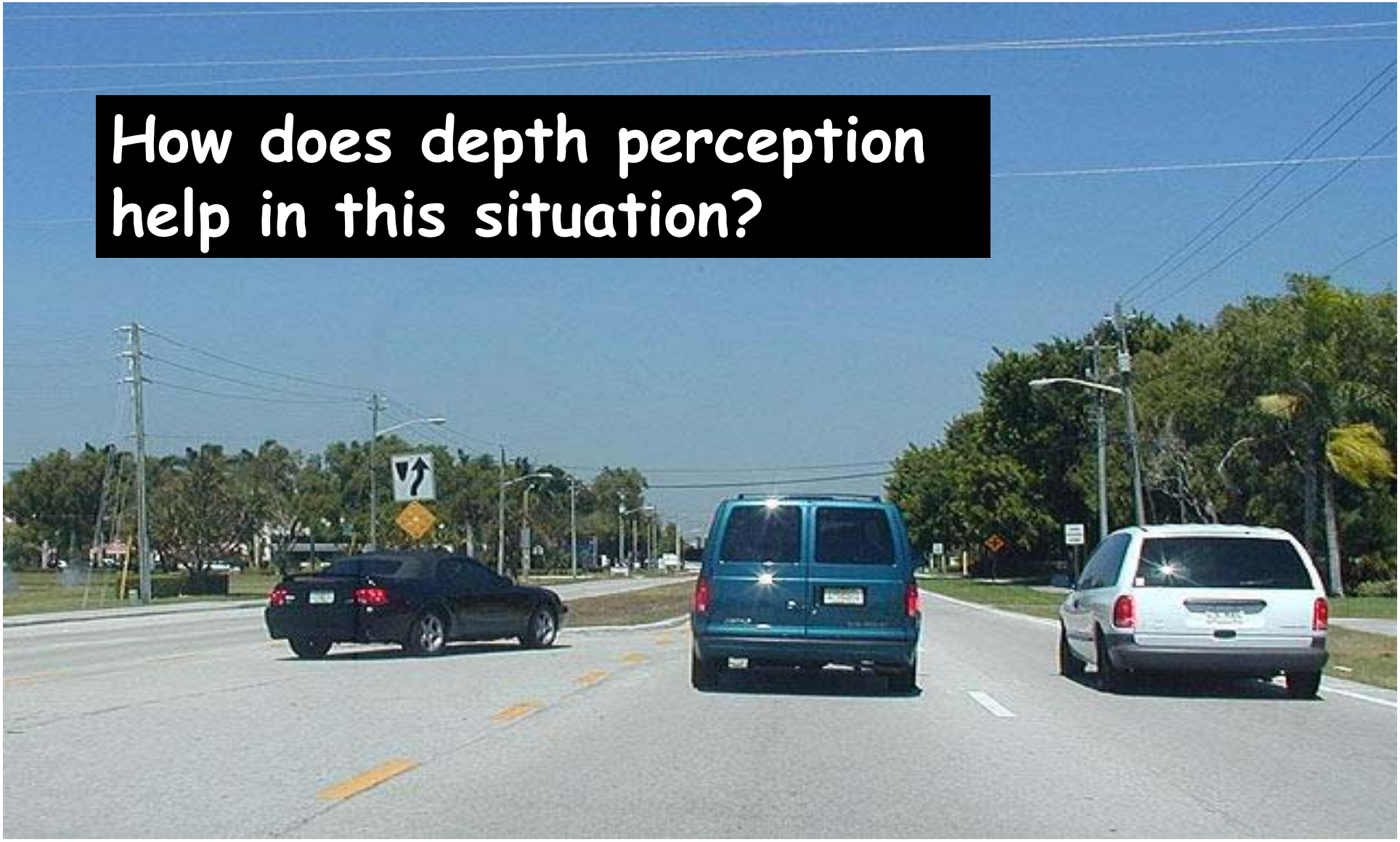
It takes both eyes to judge distance between two objects.

How do drivers use depth perception?



- Judge gaps
- When approaching a vehicle or obstruction
- When turning or merging
- When passing

How does depth perception help in this situation?



Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Central Vision

Gives us the ability to see something clearly such as the speed limit numbers on a sign

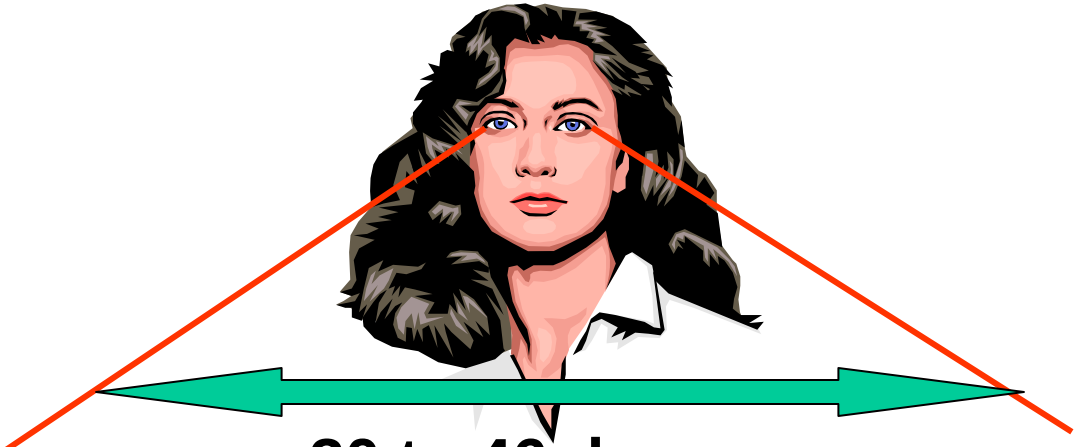
Used for:

- **Targeting Skills**
- **Establishing Visual Lead**
- **Reading Signs and Interpreting Signals**

Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

FRINGE VISION



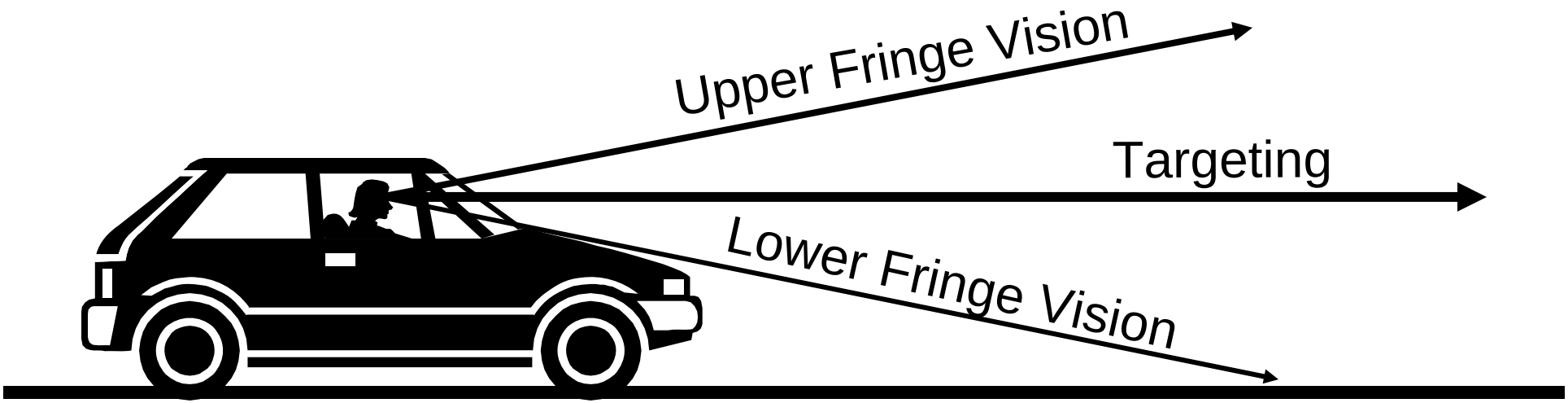
30 to 46 degrees of useful information

Used for:

- **Seeing reference points**
- **Keeping drivers on the targeting path**
- **Helping drivers judge depth and positioning**

Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov



Fringe Vision lets drivers see the roadway without looking down

Peripheral Vision

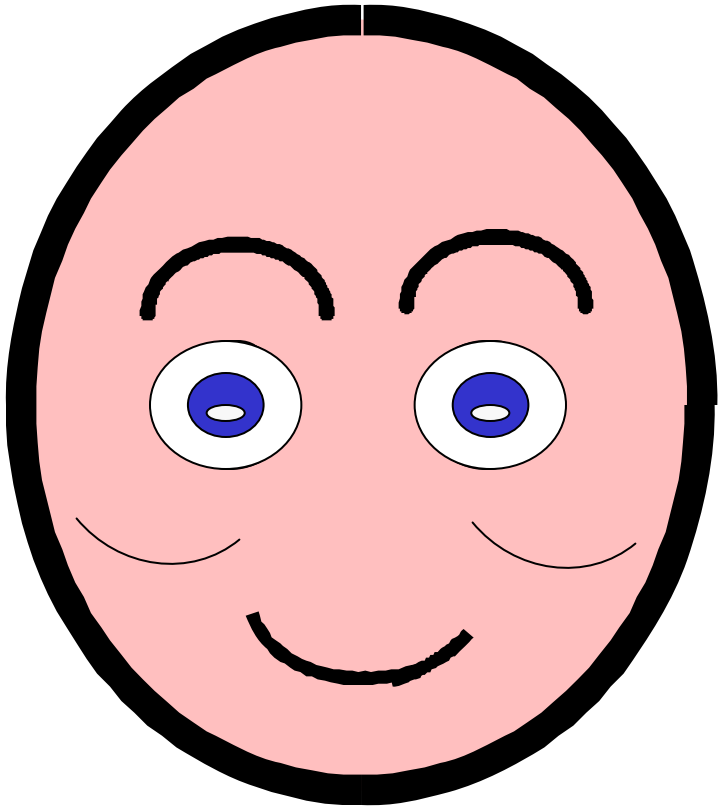
Approximately 90° to each side

Totaling about 180-190°

Used to see

- **Moving Objects**
- **Color Changes**

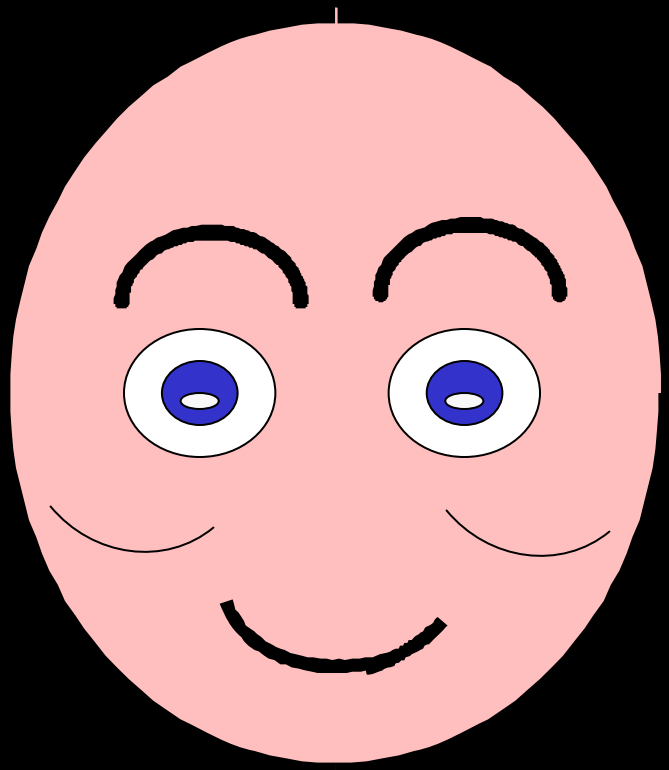
Peripheral Vision Limits



Limited to:

- **The top of the eyebrows**
- **Bottom of the cheeks**
- **The side by the opening in the iris**

Night Time Peripheral Vision



Reduced Dramatically!

- **Lack of light to the retina**
- **Sudden glare affects vision**

- **Central and Fringe Vision become more critical when searching for problems**
- **Central Vision is reduced**

Montana

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

Peripheral Vision

How do drivers use peripheral vision?

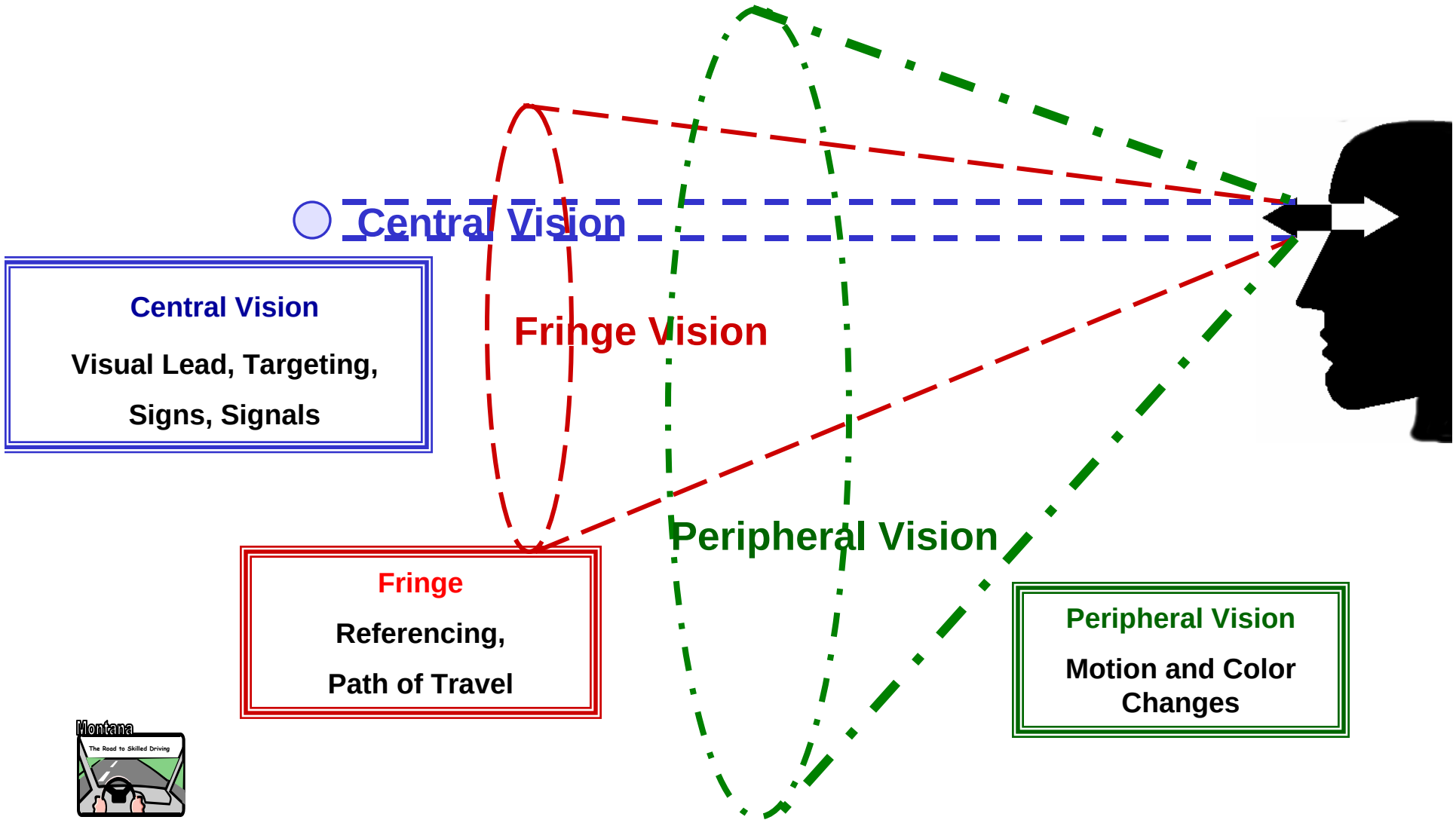
- See color and object movement
- See signal changes, road signs, warning lights on the dashboard
- Monitor traffic
- Stay within the lane

Peripheral Vision

Peripheral Vision is affected by:

- inattention
- fatigue
- drugs
- poor weather
- darkness
- speed

The Three Visual Fields



OVERCOMING VISUAL PROBLEMS

How can a driver overcome problems with

Visual Acuity

Depth Perception

Color Blindness

Human's Night Vision Doesn't Compare to Nocturnal Animals

So extraordinary is an owl's night vision, it can spot a mouse creeping through the underbrush more than a football field away on a moonless night.

Overcoming Night Vision Problems

Compensate for reduced night vision by:

- reducing speed
- increasing following distance
- using the headlights of other vehicles to see more clearly
- keeping headlights and windows clean
- not looking at the headlights of approaching vehicles;
- not wearing sun glasses at night

How can GLARE like this affect driving?

Overcoming Glare Problems

Compensate for glare by:

- Keeping sun glasses in the vehicle
- Using a greater following distance
- Avoiding looking at headlights
- Adjusting and using the sun visor
- Squinting may help
- Reducing speed until vision returns
- Communicating with others

The Effect of Speed on Vision

- As speed increases drivers need more time to gather information to maintain car position and detect movement
- Drivers have less time to see and make decisions
- Peripheral vision becomes blurred and distorted

Increased Speed

As speed increases:

- central vision decreases and blurs
- peripheral vision decreases
- sudden changes in steering may cause exaggerated vehicle movements

Narrows

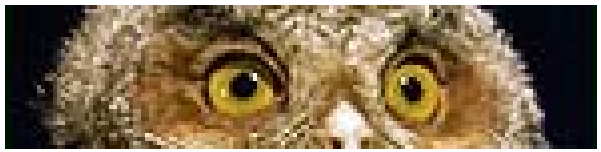
Narrows

VISION FIELDS NARROW

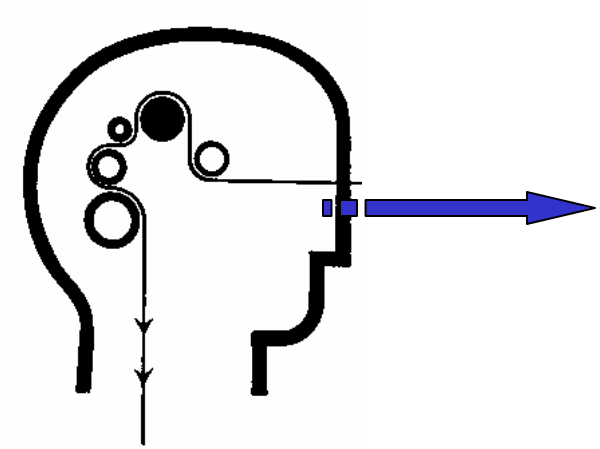
Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

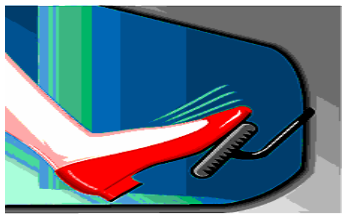
Techniques to Improve The Vision Fields



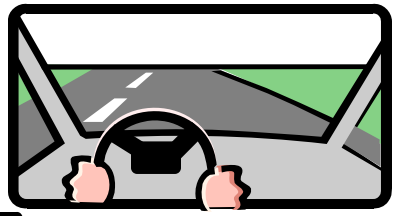
- Clean windows – inside and out
- Clean the lights – be sure they work
- Be sure the defroster and wiper blades are in good working order
- Remove any objects that interfere with vision
- Adjust mirrors properly
- Have on hand: sunglasses, flashlight, windshield scraper



Vision Control



Motion Control

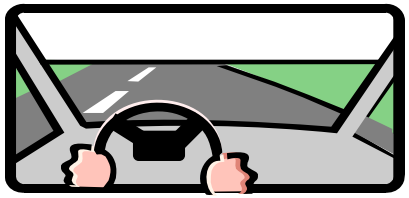


Steering Control

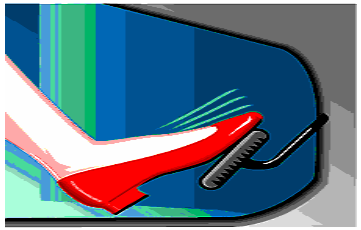
Montana
The Road to Skilled Driving

OPI Linda McCulloch, Superintendent
Montana Office of Public Instruction
www.opi.mt.gov

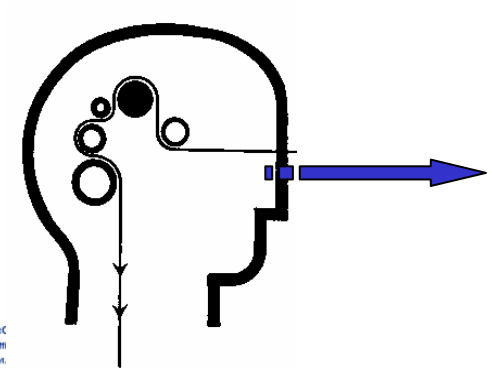
Panic!



Steering Control



Motion Control



Vision Control